

This listing of claims will replace all prior versions and listings of claims in this application:

Listing of Claims

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Previously presented) An optical system as claimed in claim 9, wherein the ultraviolet radiation has a wavelength of 13 to 14 nanometers and the objective comprises a zone plate made from molybdenum (Mo), niobium (Nb), Technetium (Tc), or Ruthenium (Ru).
8. (Cancelled)
9. (Currently amended) An optical system comprising:
 - an extreme ultraviolet radiation source;
 - a spectral filter that filters ultraviolet radiation generated by the source;
 - a reflective condenser that directs the ultraviolet radiation onto a sample at an angle of between normal to the sample and 7 degrees off normal;
 - an aperture for spatially filtering the ultraviolet radiation;
 - an objective lens comprising a Fresnel zone plate lens that forms an image of the ultraviolet radiation from the sample; and
 - a spatially resolved detector for detecting the image of the sample formed by the objective lens.

10. (Original) An optical system as claimed in claim 9, wherein the source is a laser-plasma source.

11. (Original) An optical system as claimed in claim 9, wherein the source is a gas discharge source.

12. (Previously presented) An optical system as claimed in claim 9, wherein the spectral filter is a multilayer notch filter.

13. (Original) An optical system as claimed in claim 9, wherein the condenser is a multilayer coated spherical surface.

14. (Previously presented) An optical system comprising:
an extreme ultraviolet radiation source;
a spectral filter that filters ultraviolet radiation generated by the source;
a reflective condenser that directs the ultraviolet radiation onto a sample at an angle of between normal to the sample and 7 degrees off normal;
an aperture for spatially filtering the ultraviolet radiation;
an objective lens that forms an image of the ultraviolet radiation from the sample; and
a spatially resolved detector for detecting the image of the sample formed by the objective lens; and

wherein a virtual source of the extreme ultraviolet radiation source formed by the condenser and a region of interest of the sample, which is a mask, reside on a Rowland circle determined by the condenser.

15. (Original) An optical system as claimed in claim 9, wherein the detector is a CCD camera.

16. (Original) An optical system as claimed in claim 9, wherein the detector is a CMOS camera.

17. (Previously presented) An optical system comprising:

an extreme ultraviolet radiation source;
a spectral filter that filters ultraviolet radiation generated by the source;
a reflective condenser that directs the ultraviolet radiation onto a sample at an angle of between normal to the sample and 7 degrees off normal;
an aperture for spatially filtering the ultraviolet radiation;
an objective lens that forms an image of the ultraviolet radiation from the sample; and
a spatially resolved detector for detecting the image of the sample formed by the objective lens; and
wherein the objective lens comprises an achromatic Fresnel optic with a silicon refractive lens.

18. (Original) An optical system as claimed in claim 9, wherein the source uses emission from a copper target.

19. (Previously presented) An optical system comprising:
an extreme ultraviolet radiation source;
a spectral filter that filters ultraviolet radiation generated by the source;
a reflective condenser that directs the ultraviolet radiation onto a sample at an angle of between normal to the sample and 7 degrees off normal;
an aperture for spatially filtering the ultraviolet radiation;
an objective lens that forms an image of the ultraviolet radiation from the sample; and
a spatially resolved detector for detecting the image of the sample formed by the objective lens; and
wherein the objective lens comprises an achromatic Fresnel optic with a refractive lens made from copper.

20. (Previously presented) An optical system as claimed in claim 9, wherein the objective lens comprises a zone plate lens.

21. (Previously presented) An optical system as claimed in claim 9, wherein the sample is a lithography mask.
22. (Previously presented) An optical system as claimed in claim 9, wherein the ultraviolet radiation has a wavelength of 13 to 14 nanometers and the objective comprises a zone plate made from molybdenum (Mo).
23. (Previously presented) An optical system as claimed in claim 9, wherein the ultraviolet radiation has a wavelength of 13 to 14 nanometers and the objective comprises a zone plate made from niobium (Nb).
24. (Previously presented) An optical system as claimed in claim 9, wherein the ultraviolet radiation has a wavelength of 13 to 14 nanometers and the objective comprises a zone plate made from technetium (Tc).
25. (Previously presented) An optical system as claimed in claim 9, wherein the ultraviolet radiation has a wavelength of 13 to 14 nanometers and the objective comprises a zone plate made from ruthenium (Ru).